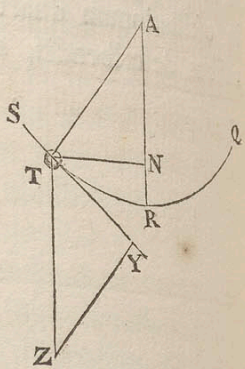


$TZ$ , qua oscillationes evadent isochronæ, erit ad vim gravitatis  $AT$ , ut arcus  $TR$  ipsi  $TT$  æqualis ad arcus illius sinum  $TN$ .

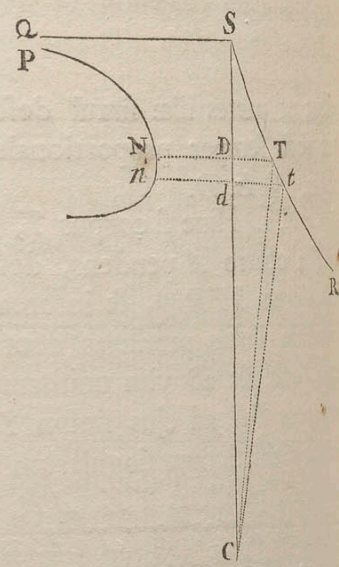
*Corol. 2.* Et propterea in horologiis, si vires a machina in pendulum ad motum conservandum impressæ ita cum vi gravitatis componi possint, ut vis tota deorsum semper sit ut linea quæ oritur applicando rectangulum sub arcu  $TR$  & radio  $AR$  ad sinum  $TN$ , oscillationes omnes erunt isochronæ.



## PROPOSITIO LIV. PROBLEMA XXXVI.

*Concessis figurarum curvilinearum quadraturis, invenire tempora, quibus corpora vi qualibet centripeta in lineis quibuscunque curvis, in plano per centrum virium transeunte descriptis, descendunt & ascendent.*

Descendat corpus de loco quovis  $S$ , per lineam quamvis curvam  $StR$  in plano per virium centrum  $C$  transeunte datam. Jun-  
gatur  $CS$  & dividatur eadem in partes innumeras æquales, sitque  $Dd$  partium illarum aliqua. Centro  $C$  intervallis  $CD$ ,  $Cd$  describantur circuli  $DT$ ,  $dt$ , lineæ curvæ  $StR$  occurrentes in  $T$  &  $t$ . Et ex data tum lege vis centripetæ, tum altitudine  $CS$  de qua corpus cecidit; dabitur velocitas corporis in alia quavis altitudine  $CT$  (per prop. xxxix.) Tempus autem, quo corpus describit lineolam  $Tt$ , est ut lineolæ hujus longitudo, id est, ut secans anguli  $tTC$  directe; & velocitas inverse. Tempori huic proportionalis sit ordinatim applicata  $DN$  ad rectam  $CS$  per punctum  $D$  perpendicularis,



pendicularis, & ob datam  $Dd$  erit rectangulum  $Dd \times DN$ , hoc est area  $DNd$ , eidem tempori proportionale. Ergo si  $P N n$  sit curva illa lineam quam punctum  $N$  perpetuo tangit, ejusque asymptotos sit recta  $SQ$  rectæ  $CS$  perpendiculariter insistent: erit area  $SQP$   $ND$  proportionalis tempori quo corpus descendendo descripsit lineam  $ST$ ; proindeque ex inventa illa area dabitur tempus. *Q.E.I.*

## PROPOSITIO LV. THEOREMA XIX.

*Si corpus movetur in superficie quacunque curva, cujus axis per centrum virium transit, & a corpore in axem demittatur perpendicularis, eique parallela & æqualis ab axis puncto quovis dato ducatur: dico quod parallela illa aream tempori proportionalem describet.*

Sit  $BKL$  superficies curva,  $T$  corpus in ea revolvens,  $STR$  trajectoria, quam corpus in eadem describit,  $S$  initium trajectoriæ,  $OMK$  axis superficiæ curvæ,  $TN$  recta a corpore in axem perpendicularis,  $OP$  huic parallela & æqualis a puncto  $O$ , quod in axe datur, educta;  $AP$  vestigium trajectoriæ a puncto  $P$  in lineæ volubilis  $OP$  plano  $AOP$  descriptum;  $A$  vestigii initium puncto  $S$  respondens;  $TC$  recta a corpore ad centrum ducta;  $TG$  pars ejus vi centripetæ, qua corpus urgetur in centrum  $C$ , proportionalis;  $TM$  recta ad superficiem curvam perpendicularis;  $TI$  pars ejus vi pressiois, qua corpus urget superficiem vicissimque urgetur versus  $M$  a superficie, proportionalis;  $PTF$  recta axi parallela per corpus transiens, &  $GF$ ,  $IH$  rectæ a punctis  $G$  &  $I$

